

USE OF OZONE THERAPY IN OBSTETRIC AND GYNECOLOGICAL PRACTICE

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Abstract

The increasing frequency of mixed infections against the background of reduced immunity and the increasing role of viruses in the occurrence of inflammatory diseases determines special interest in finding new reserves for increasing the effectiveness of prevention and treatment of women, men and newborns. The problem is aggravated by the deterioration of the environmental situation and the increasing degree of allergization of the population. Thus, allergic reactions to antibacterial therapy are observed in 12% of patients, and with repeated courses they increase to 47%. Therefore, the search for new methods of prevention and treatment that do not have allergenic consequences, and often reduce them, turns out to be the most justified for preserving reproductive health [8].

Keywords: ozone therapy, physico-chemical, allergic reactions, laser therapy, oxygenation.

Introduction

The severity of the problem can be significantly reduced by modern non-drug treatment methods, which include hemapheresis, laser therapy, hyperbaric oxygenation, and ultraviolet blood irradiation. Related ozone therapy has become increasingly important in recent years. Possessing bactericidal, antiinflammatory, antiviral properties, ozone is not a pharmacological drug, but an environmentally friendly physico-chemical factor. Technically simple, economical and effective, ozone therapy has long been widespread in the world [4, 10, 11].

Caesarean section is currently the most common delivery operation. The widespread introduction of abdominal delivery into obstetric practice has increased the risk of developing purulent-inflammatory complications in the postpartum period. To prevent purulent-inflammatory complications after abdominal delivery, we conduct a course of ozone therapy for postpartum women with a burdened obstetric and gynecological history, with chronic extragenital diseases, carriage of a viral infection, with bacterial vaginosis, as well as with allergies to various medications, including antibiotics. We carry out a course of ozone prophylaxis, consisting of 5 procedures, intravenously every other day. The first injection of ozonated saline solution is carried out at the time of the operation, the remaining 4 injections are carried out once a day under the control of the hemostasis system. The ozone concentration in the solution is 2-2.5 mg/l, the volume is 200 ml [6].

In case of initial manifestations of chronic placental insufficiency, when the compensatory capabilities of the fetoplacental complex are preserved, in addition to drug treatment, we include a course of ozone therapy: intravenous drip injections of ozonized physiological solution (ozone concentration in the solution - 0.4 mg/l, volume - 200 ml) every other day, for course of 5 procedures [5].



Prevention and treatment of pregnant women at risk for intrauterine infection of the fetus begins in the second trimester of pregnancy. Along with etiotropic and local correction, we use ozone therapy using the following method: intravenous drip infusions of ozonized saline solution, 200 ml every other day, in the amount of 5 procedures (ozone concentration in the solution is 0.4 mg/l). The use of ozone in the complex treatment of pregnant women with chronic foci of extragenital infection can reduce the use of antioxidants and immunocorrectors.

To prevent purulent-inflammatory complications after spontaneous abortion in the first trimester, we use ozone therapy in women with a history of miscarriage, chronic genital and extragenital diseases, persistent viral and bacterial infections. In the early post-abortion period, we carry out intravenous drip infusions of ozonized saline solution, 200 ml every other day, with an ozone concentration of 2.5 mg/l, for a course of 5 procedures. The inclusion of ozone therapy in the complex treatment of women after spontaneous abortion helps to reduce both early and late inflammatory complications of spontaneous abortion, earlier restoration of normal ovarian function (by the 3rd menstrual cycle), leads to a favorable course of subsequent pregnancy, the frequency of spontaneous abortions decreases and perinatal pathology, the number of healthy children born is increasing [7].

We have established a positive effect of medical ozone on the clinical course, outcomes of combined inflammatory diseases of the uterus and appendages, tubo-ovarian abscesses in women that arose against the background of intrauterine contraception. In complex treatment, ozone therapy was carried out by intravenous drip infusion of physiological solution, 200 ml every other day, with a concentration of medical ozone in the solution from 1.5–2 mg/l at the first administration to 3.5 mg/l at the 4th–5th procedure. A subsequent decrease in ozone concentration by 0.5 mg/l was carried out with each infusion. The course of treatment was completed with the initial concentration of ozone in the solution. The number of infusions is up to 12 per course [3].

The use of ozone therapy has given good results in the treatment of women with concomitant damage to the genital mucosa by yeast fungus of the genus *Candida*. Daily or every other day use by such women of intravaginal irrigation of the cavity with ozonized saline solution with a medical ozone concentration of 8-9 mg/ml, followed by the use of tampons with Ozonide oil, led to the complete disappearance of subjective complaints after 4-5 such procedures. After a course of ozone therapy, according to enzyme-linked immunosorbent assay data, fungal infection persisted in 3.5% of patients [8].

A separate group of women was identified with erosive processes in the cervical mucosa of chlamydial and mycoplasma etiology, which did not heal for a long time, and often recurred. The use of tampons with ozonated oil with daily use or every other day No. 8 made it possible to reduce the treatment time for this nosology and achieve good results. It was noted that in 68% of women after such a course of ozone therapy, complete healing of erosion occurred, and when observing these women after 1-2 months, no relapse was observed in 87% of cases. In cases of new relapses of the erosive process of the cervix, the absence of complete healing with local treatment with Ozonide oil, women underwent cryodestruction of the cervix with liquid nitrogen, followed by the use of tampons with Ozonide, as a result of which it was possible to achieve a reduction in the healing time and removal of the scab after cryodestruction. The combination of drug treatment and ozone therapy made it possible to achieve almost complete elimination of pathogens of co-infection in women in 76.0% of cases, whereas when using only traditional drug therapy, a favorable effect was achieved only in 48.0% of cases ($p < 0.001$) [8].



We obtained a positive effect when treating women with a verified diagnosis of bacterial vaginosis. Daily vaginal irrigation with ozonated saline solution led to the complete disappearance of subjective complaints after 5 similar procedures. The results of a comparative analysis of bacteriological research data before and after treatment showed that complex treatment using ozone, compared with traditional treatment, more effectively suppressed the growth of opportunistic microorganisms. Thus, after ozone treatment, the landscape of the vaginal smear changed; the number of facultative anaerobic gram-positive bacteria (streptococci, corynebacteria; $p < 0.01$) decreased by 1–2 orders of magnitude. Similar changes occurred in the gram-negative flora ($p < 0.01$). Facultative anaerobes were replaced by microaerophilic bacteria; lactic acid bacteria (107–108) predominated in the smear, which is typical for normocenosis [1].

We widely use ozone therapy in the comprehensive rehabilitation of married couples with early pregnancy loss, which ensures the restoration of reproductive health in women and men, leads to a decrease in the incidence of the threat of miscarriage in women during subsequent pregnancies and, as a consequence, to a decrease in the frequency of recurrent pregnancy loss, perinatal pathology. In the comprehensive preconception preparation of women and men, we use systemic administration using the following methods. Intravenous drip infusion of physiological solution with a concentration of medical ozone in the solution of 2.5–3.5 mg/l. Minor autohemotherapy with an ozone concentration in the ozone-oxygen mixture of 30 mg/l. Systemic administration was combined with local use of ozone, in which vaginal instillations were combined with treatment of the perineum in women and the urethra in men with ozonated saline solution with an ozone concentration of 9–10 $\mu\text{g/ml}$. The course of systemic and local therapy consists of 5 procedures performed every other day. Additionally, men were recommended to use Ozonide oil for 10 daily procedures. The use of combined anti-inflammatory therapy using the ozone therapy method promotes a more rapid and complete restoration of the functional state of the endometrium in non-pregnant women with habitual early miscarriages and chronic inflammatory diseases of the genitals that do not have clinical manifestations [2].

The complex use of medical ozone has proven to be effective in men with chronic prostatitis against the most significant urogenital infections, such as chlamydial and herpetic infections. It turned out that improvement in spermogram parameters (decrease in ejaculate viscosity, number of leukocytes and morphologically changed forms, disappearance of the phenomenon of sperm agglutination and increase in the number of lecithin grains in the field of view) was more often observed after complex ozone therapy compared with traditional treatment. However, medical ozone did not restore reduced sperm motility [9].

Thus, the inclusion of medical ozone in the comprehensive health program for women and men in couples with a history of miscarriage contributed to a more complete restoration of reproductive health, improving the course and outcome of subsequent pregnancies.

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